

The Minuteman

Newsletter of the Minuteman Repeater Association - April - May 1991
Volume 20 Number 5

The President's Corner

The May meeting is the last until September....but there is going to be activity through the summer. We have a lot of work to do - see Scott's Tech Stuff - and we will need help getting it all done. The shelter work at 449.925 and '61 are high priority items; we'll be getting the word around when we schedule the work.

We are planning another flea market in the fall. We have a commitment from Westboro to use the high school on September 7, the first Saturday after Labor Day. It will be the first major flea of the fall season in our area, so we should do well....so mark that date on your calendars.

A new operating guide has been prepared for the membership. It has been updated with all the information about the networked repeaters and how to use them. The new guide will be going to press within the next month, and everyone will receive it by June.

You might be interested to know that the FCC has decided what to do with the purloined 220 spectrum....in April a national lottery will determine how the 2 Mhz pie is cut and who gets the pieces. Sort of reminds me of the Oklahoma land rush....see Items of Interest.

On August 10, there is a major public service event; the Pan Massachusetts Challenge. A bicycle race, the PMC is aimed at raising funds for the American Cancer Society. It starts on Saturday in Sturbridge, ends the first night at the Mass Maritime Academy in Buzzards Bay. On Sunday, the bikers take off from there and peddle out to the Provincetown Inn for the finish. Hams will provide communications for the event, placing people with radios at water stops and in vehicles carrying EMT teams to take care of anyone hurt out on the course.

This is a fun event; if you can allocate either or both days to helping out, contact Ed Parrish, WA2SCA John Vale, N1DXG.

The meeting in May is our annual elections meeting, so try to come over to the Campion Center. In addition, as I threatened after doing the presentation on automated meter reading, I will be doing another dog and pony show about

Continued on Page 5

1991 Election Slate

President: A. Morrison, N1BHI

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(Replacing KA1RVM)

Director: S. Bullock, KA1CLX

Meeting Program: Andy Morrison, N1BHI, will give a presentation about the computer aided dispatching system being installed at Boston Gas, focusing on the radio communications aspects of the design.

Flea Market - September 7 Westboro High School

Buyers: 8 A.M. Sellers: 10 A.M.
Tables: \$10 prepaid, \$15 at door
Contact N1BHI, Andy Morrison

New Autodial Features on Central Node, 449.925

Effective May 1, on any repeater that is linked to 449.925, you can access the State Police emergency number in Boston to report any emergency on any highway by dialing SP* or 77*. This is to be used only for emergencies, ie, car accidents, severe road hazards, etc. It is NOT to be used to report tire changers or request any normal roadside assistance, unless the vehicle involved poses a SERIOUS hazard to moving traffic. This feature is available on a trial bases. If it is not abused, then it will become permanent. THIS IS FOR ALL HAMS ! Refer questions to KA1CLX or N1BHI.

Mobile Installations

By Scott Bullock, KA1CLX

Through the years, I have seen many Ham Radio mobile installations that would make some people cringe. The intent of this article is to give people pointers on correctly installing mobile two-way radios.

The most important part of any installation is the antenna system. First and foremost, the antenna should be located on the most ideal spot on the vehicle. This is generally the center of the roof. This is not always possible, as most hams will not even think of drilling a hole into their brand-new vehicle roof. For those of you that don't mind the hole, take your drill with a 3/4 inch hole saw and center it on the roof by either measuring it, or by lining it up with the hood ornament and the rear view mirror position on the windshield. You can use commonly available hole saws from your local hardware store, but make sure that you wrap about 50 turns of pvc electrical tape around the shank of the bit, so that when you drill the hole in the roof, you don't also drill through the headliner in the process. Also available are commercial drill bits that have an adjustable stop collar on the hole saw, making the job real easy. After you drill the hole, clean the paint from around the outside of the hole for about 1/8 inch to facilitate a good ground for the antenna mount. Getting the wire through the headliner is fairly easy; first disassemble the interior light in the headliner. Then either using an electrician's snake, fish the cable across the roof to the side of the vehicle. I have used a piece of a speedometer cable (can be purchased for 5 dollars at auto parts store) as a snake. From there route the cable to the point where the radio is, making sure to keep the cable from being pinched. Be sure it is positioned to avoid drilling through it with interior screws, and most important, do not route near the car's electrical harness. This will greatly reduce your chances of having problems with interference in the vehicle with computer, etc. For those of you that don't want to drill a hole, use a magnet mount, trunk lid mount, or glass antenna, but be prepared to lose some efficiency and range. Power cables should be dressed neatly away from the radio location, radios and amplifiers should NOT be run off the

cigarette lighter or from the auto's fusebox. Neither of these are capable of supplying the current needed to run most modern radios, and also can lead to problems with alternator noise and in-vehicle computer noise. Ideally, heavy gauge wire should be run directly to the battery, or through a suitable ignition control relay to the battery.

This brings up two points. The first is that when going through the firewall, drill a hole and use a suitable grommet in the hole, or use an existing rubber plug in the firewall to prevent any possibility that later on the firewall will chafe through the wire. Also, do not connect directly to the battery whenever possible, as copper wire will corrode very quickly and cause problems. Instead, always try to connect to the hot side of the starter solenoid. If you do take power directly from the positive battery terminal, use a cable terminal, both crimping and soldering it to the cable. For side mount battery terminals, there are commercially available power terminals specifically designed for that application; they are available in any good auto parts store.

ALWAYS fuse the power cable directly at the point of connection, and run the ground wire directly to the battery negative terminal.

If your power take off from the battery is designed to power several radios and amplifiers, as is often the case, you will be using number 8 or larger wire, especially if long runs to trunk mounted amps is needed. In this case, a failure that draws short current in the long run to the rear of the vehicle could cause a fire, so the fusing must accommodate the maximum expected current draw while protecting against the short circuit. The current value of the fusing should be about 5 to 10 amps greater than the maximum anticipated drain, but NEVER more than the rated capacity of the power cable you have used. You can use a fused link, similar to that used by the car's builder in the main accessory line coming from the battery to the ignition. This is a piece of wire that will vaporize, breaking the circuit. You can also use truck circuit breakers, available at truck parts or RV accessories stores.

When the ground lead goes directly to the negative terminal of the battery, you must prevent any possibility of a ground fault. Continued on next page.....

Mobile Installations.....

Continued

occurring and pulling starter current through your radio. Fuse BOTH the hot and ground leads on radio and amplifier power cords. Some power cables are already equipped with two fuse holders...if your's is not, add one in the ground lead, and use a fuse of the same current rating as is provided by the manufacturer for the hot side.

Mounting radios also provides a challenge in many of today's new cars. Always select a spot that is easily seen from the driver's vantage point, without having to take your eyes too far off the road. Select a point that will not interfere with driver's or passenger's seating.

ALWAYS mount the radio firmly to a solid surface, in an accident, a 5 pound flying radio can do a lot of damage to somebody. Consider custom mounting the radio in part of the dashboard to facilitate ease of operation and also make it harder for thieves to remove. Mount microphone clips in a convenient spot, as you don't want to fumble with it trying to get it out of the holder while driving. THE BIGGEST POINT ABOVE- MINIMIZE DISTRACTIONS! AND HAVE A NEAT INSTALLATION! I hope that I have given you some good pointers; if you should have any questions, grab me at a meeting or on the air.

Items of Interest..... FCC

Actions of Concern.....

So now that that lower 2 Mhz is gone from our 220 band, what are they doing with it? This question might be of interest to hams, so here's the answer.

The FCC adopted an Order establishing service rules for the use of 220 - 222 Mhz by private land mobile licensees. The spectrum has been allocated in 400 five Khz frequencies, paired to provide 200 narrowband channels. They have been grouped into seven categories based on user type and use. Some of the user types are commercial, non-commercial, and public safety; uses include trunked, data, and so on.

Applications for pieces of this spectrum were going to be accepted on the second day after the publishing of the order in the Federal Register. Applications filed on the same day for more than the available number of channels or channel groups become subject to a lottery.

Continued on next page.....

Tech Stuff

By Scott Bullock

In the past several months, several very positive things have happened in the club; a brief synopsis follows.

The first is that Quincy 224.40 has been linked to our network, many thanks to Roy, KC1VW, for helping brave a rainy day to reinstall the repeater and new link antenna. Everything appears to be working very well after a few minor problems.

The second is that the newly formed technical committee had our first meeting in March. We have 13 well rounded technical/non-technical members, and are looking forward to accomplishing many things that need to be done on the repeaters. As I have said in the past, if you would like to lend a hand, give me a call for our next meeting time and location. A prioritized list of jobs is being worked on at the moment and should be done by the next meeting.

The third is that several programming changes have been made to 449.925 enabling advanced features to be used by members and non-members alike. These are: EMERGENCY AUTODIAL FOR STATE POLICE by entering SP* (77*). This will dial 1-800-525-5555 automatically for you, enabling faster access to police in the event of an emergency. Also there is a new touch tone tester available, please see related information in this newsletter. Both of these features are on a trial basis. If they get abused, then we will have to disable them.

The fourth is the one that a lot of people have been waiting for: the new OPERATING GUIDE is near completion. Included in this version are link and patch usage, testing touch tones along with other subjects.

As mentioned elsewhere in this issue, the MMRA will be hosting a new fall FLEA MARKET on September 7. This will be the first flea market of the fall season. If you are interested in helping out, please give Andy Morrison a call.

Items of Interest..... Continued.

Potential licensees were poised for their filings; an avalanche is expected, and a lottery will most certainly be necessary. To file one has to come up with a fee, which if he loses in the drawings, is forfeit. For example, to file for a ten channel and five channel non-commercial block, along with a five channel commercial block would require a fee of \$49,000.

Manufacturers have already begun introducing equipment for the band; ACSB (Amplitude Compandered Sideband) is one of the modes that will appear on the band.

How can this impact us? Well... if you look at the 440 - 450 Mhz band, you see a piece of spectrum which because of such heavy commercial use near it, requires most repeaters to have tone squelch to avoid problems with occasional intermod or other interference. As soon as 220 - 222 Mhz has all channels coordinated in the greater Boston area, the probability of spurs and/or intermod products interfering with our 220 Mhz repeaters is significantly increased. But that's life in the big city.... Interference that we may get from some of the new radio systems will be different in character and timing - ACSB will produce power bandwidth characteristics that are different from narrowband FM. Spurs may only occur at or near peak sideband power output, existing for only the time an audio peak occurs. These will be harder to find than if FM were the source.

This should not get bad for some time; nationwide licensees will have to put 10 percent of their stations on the air within the first two years. The nationwide license term is 10 years, with 2, 4, 6 and 10 year benchmarks for getting systems on the air.

A couple of other things are happening that could be of interest to hams....the FCC is proposing to make significant changes to its rules governing radio towers. The new proposal would require an FAA notice for virtually any construction in the vicinity of an airport, irrespective of height. Also of concern is the possibility that notice may be required for any modification to a transmitting station within 3000 feet of an air navigation or communications aid.

It's not clear yet whether this will affect

amateurs; it bears watching.

The FCC has installed an automated information system for the Private Radio Bureau in Gettysburg. If you have a touchtone phone, dial 717-337-1212. The main menu offers two options - pressing a one gets application status or fee information, a two takes you to the next menu. That menu offers 4 options: one - Forms requests or duplicate licenses; two - latest amateur call sign allocations; three - interference complaints; four - availability of records. We dialed the service and found that as of April 1, WQ1U, KD1AI, N1IQY and KA1YMD have been assigned.

The FCC has eased the morse code testing requirements for disabled people. Procedures now allow people with certain disabilities to request a waiver of the 13 and 20 wpm test requirement. FCC will rely on the integrity of a doctor who certifies in writing that a person is unable to pass the code test because of a handicap. The doctor must be an MD or DO (Doctor of Osteopathy). The ARRL believes that this represents a radical reversal of stated FCC policy, and is an action which could to jeopardize integrity of the VE program. The FCC could get into the position of having make judgements on who is eligible for the waiver; use of a list of disabilities that would make someone unemployable was part of the proposal and was heavily opposed. As a result, a doctor must certify that the candidate is unable to pass the telegraphy examination, and his judgment rules. The ARRL urged and the FCC accepted use of a release to be signed by the candidate, allowing disclosure of medical information to the FCC. A revised form 610 will include a physician's certification form. The new procedures became effective February 14.

The FCC has been conducting an audit of the operations of licensees in various communications services in several metropolitan areas. The program began

MIT All Summer Flea Sale -

Third Sunday of Each Month, April thru September.....Albany and Main Streets, Cambridge, Mass. Sellers: \$1.50, 50 cent discount with this notice. Buyers: \$8.00 per space at the gate, \$5.00 pre-paid. Call 617-253-3776 for more info.

Items of Interest..... Continued.

February 28. Land mobile and other licensees, CATV, and other systems have been looked at....and amateurs were included. In several cases, amateurs found FCC inspectors on their doorstep, asking to run a test of high and low power operation. FCC regional offices were asked to each pick six amateur stations by any means for this audit. Presumably, if they visit you, and find any violations, some form of action may be taken. It appears that interference to telephone systems might be the reason the FCC is looking at amateur stations; if the commission ends up asking amateurs - or telling them - to use less power, rather than using its authority to require manufacturers of phones and accessories to make them less susceptible to RFI, then we will suffer.

One of the ongoing discussions among public service minded hams involves supporting a public event, such as a foot or boat race. The controversy arises concerning the use of amateur communications relating to logistic support of the operation, in addition to serving the safety of both participants and the general public. Interpretations of what is proper from the FCC are always of interest; we have one concerning the IDITAROD sled dog race in Alaska.

The FCC had given amateurs an interpretation of what would be proper, and decided to monitor the 1990 race communications. Messages regarding the movement of officials were copied, in apparent violation of the no business communications rule. Prior to the 1991 race, the Private Radio Bureau Licensing Division attempted to assist race promoters in acquiring commercial licenses to take care of logistic communications. It appears that a dampening effect on amateur involvement has occurred; race organizers have been attempting to clear up the issue with little success.

HR73, The Amateur Radio Spectrum Protection Act of 1991, was introduced by Rep. Jim Cooper, a Democrat from Tennessee, on January 2. The Bill, with 22 co-sponsors, will require that existing spectrum be maintained, or if taken be

replaced by spectrum equal in extent and characteristics. Cooper introduced the Bill in the belief that since it is non-commercial, and provides valuable public safety communications when needed, that "a statutory safeguard is needed to guaranty the survival of the Amateur Radio Service." Let's get behind this one..... call or write your Congressman and let him know that somebody out here cares about this bill!

President's Corner..... continued

the computer Aided Dispatching System at the Boston Gas Company. The system involves use of mobile packet radio; the talk will be oriented to the communications network design and the problems we encountered in setting it up and testing it.

In the Items of Interest column we are hoping to offer extracts of news from a number of sources....not all of us subscribe to all the various magazines, so we thought it would be a good idea to get some of the news in general into The Minuteman. We hope you find it interesting and useful. National news is not the only stuff that interests MMRA members, so if you have any juicy tidbits that are newsy and interesting, let us know about them. We'll be glad to consider them for inclusion....things like upgrades of members, things being done by other ham radio clubs or organizations at the local level, events -- all are grist for this mill.

**Don't Forget.....
Annual Elections, next
Monday, May 13. Try to
Be there.....**

Flea Market, Sept. 7

**Enjoy your Summer....
See you in the fall
Newsletter**

The Minuteman

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Volume 20 Number 5

MMRA INFORMATION

Repeater Information

Weston	146.82	KA1AL/R	PTL	P	
Marlboro	146.61	N1BHI/R	FTL	P	
Marlboro	449.925	KA1CLX/R	FTL	P	
Stonham	146.715	N1DKZ/R	PTL	P	(link not yet on)
Quincy	146.67	KC1VW/R	PTL	P	(link not yet on)
Quincy	224.40	KA1CLX/R	FTL		
Weston	224.70	KA1AL/R	FTL		(patch via link)
Hopkinton	223.94	N1BHI/R	FTL		(patch via link)
Weston	447.??	KA1CLX/R	FTL		(awaiting coordination)(guest rptr)

FTL = Full Time Linked PTL = Part Time Linked P = Patch

Officers and Board of Directors

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Newsletter Editor:	Al Medsker (WB0SQR)	617-926-8650	

Meetings:

Membership : Second Monday of ODD numbered months, Campion Center, Weston
(September through May)

Board: Second Monday of EVEN numbered months. Meetings are open,
members welcome. If a visiting member wants to be on the
agenda, please contact Andy Morrison beforehand.

The Minuteman Repeater Association is dedicated to Service in the Public
Interest. A Non-profit organization, the MMRA is a registered Massachusetts
Corporation. Membership is open to all radio amateurs; annual dues are \$25
for individual membership, \$35 for family membership.

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